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ABSTRACT

The Fargo Public School System has completed a three-year project on a Planning-Programming-Budgeting-Evaluation System (PPBES). The two major purposes of this project were to develop a model for PPBES and to implement this system in the school district operation. Project activities included work in all four of the PPBES phases. The planning stage was considered the foundation of the system. Several administrators and teachers were involved with various tasks in this phase. The project staff developed a multilevel program structure outline to encompass and relate all activities that take place in the Fargo district. In the programming phase, the staff sought to select the best route to achieve goals and objectives developed in the first phase. An innovation in the budgeting stage was the assigning of expenditures to specific school programs. The evaluation phase is used to enable school districts to determine the extent to which their objectives are achieved. The project staff feels that the system has many merits, can be very useful in providing important information to decision-makers, and can be very efficient in assisting districts to provide educational accountability. (Author/IRT)

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Model for Educational Accountability—

Development of a

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FINAL REPORT

PPBES - PLANNING, PROGRAMMING, BUDGETING, EVALUATION SYSTEM

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TABLE OF CONTENTS

Abstract	i
Project Funding	1
Methods	2
Planning	2
Programming	3
Budgeting	4
Evaluation	8
Results and Findings	9
Typewriting Classes	9
Teacher Attitude Survey	10
Conclusions and Recommendations	11
Problems Encountered	11
Benefits and Advantages	12
Conclusion	15
Appendices	

ABSTRACT

The Fargo Public School System has completed a three year project on PPBES (Planning-Programming-Budgeting-Evaluation System). The two major purposes of this project were (1) to develop a model for PPBES and (2) to implement this system into the school district operation.

The project was funded by the North Dakota State Board for Vocational Education and was conducted entirely within the vocational department of the Fargo Public Schools. School officials believed that a model could be completely developed in one academic area. They felt that it could be expanded to the entire school system after it had been refined in the vocational area.

Project activities included work in all four of the PPBES phases. The planning stage was considered to be the foundation of the system. Several administrators and teachers were involved with various tasks in this phase. Project personnel identified needs and problems. They also identified and evaluated the resources that were available to aid in the solution of these problems. The staff developed educational goals that were broad in nature. Selected groups of local teachers developed specific program objectives. Each of these objectives was written clearly and explicitly to facilitate program evaluation.

The project staff developed a multi-level program structure outline to encompass and relate all activities that take place in the Fargo School District. The first level breakdown included the three broad categories of general instruction, operational support, and instructional support. These three categories were subdivided. The general instruction category was broken at level two into communication skills, mathematics, vocational

education, etc. At level three one of the classifications under vocational education was business and office education. The latter was subdivided at level four to include typewriting, office practice, accounting, shorthand, business machines, and keypunch.

In the programming phase, the staff sought to select the best route to achieve goals and objectives. This selection was made after the staff had identified and evaluated several alternative programs.

The staff members developed and organized instructional materials for use in each of the school courses. They revised and updated educational learning packages that had been previously developed by local teacher groups.

An innovation in the budgeting stage was the assigning of expenditures to specific school programs. This program budgeting replaced the traditional budgeting in which costs were assigned to categories such as administration, instruction, and transportation. Budgets could be calculated for any program and at any level in the program structure.

Evaluation is the fourth phase in the PPBES cycle. This process is used to enable school districts to determine the extent to which their objectives are achieved. Districts also have the opportunity to examine and assess various alternative techniques. Ultimately, the evaluation process enables the district to collect data and information that aids in the educational decision making process. After these decisions have been made, the PPBES process moves to the planning stage and the cycle begins again.

Activities in the evaluation phase included the comparison of performance to objectives and the relationship of student achievement gains to program costs. Achievement was measured by pre- and post-testing with tests that were developed locally to assess the degree of objective attainment. The cost/benefit

ratio was calculated for each program to relate the achievement to the financial costs.

The Fargo staff members recognized the magnitude of the job in this project. They realized that all of the tasks in the overall job have not been completely finished. However, they do believe that very much progress was made in the three years of the project.

The PPBES model has been developed in the vocational area. It may now serve as a guide and stimulus for other schools and agencies who are beginning to move in this direction.

Many states have suggested, and even mandated, that districts develop some type of accountability system. Since North Dakota is now studying this problem, the Fargo project has assumed increased importance. The model could aid in the statewide decision making process and would certainly be a guide if the state chooses to require this type of system.

Many side benefits have been derived as a result of the project, especially in the area of curriculum. The teacher groups have written course objectives, selected instructional materials, and ultimately strengthened the instructional process. In addition, teacher morale has generally been improved as a result of their increased involvement.

In conclusion, the project staff members realize that the PPBES is not a panacea. However, they do feel that the system has many merits, can be very useful in providing important information to decision makers, and can be very efficient in assisting districts to provide educational accountability.

PROJECT FUNDING

The Fargo PPBS Project application was approved on March 16, 1971. The State Board for Vocational Education approved the application for a research grant in the amount of $27,700. The purposes of the grant were to (1)assist the Fargo School District in the development of a PPBES Model for use in Vocational Education and (2)to implement this system in the Fargo Schools operations.

The original proposal outlined a three year project with proposed budgets as follows:

1st year (1971-72)	$45,250
2nd year (1972-73)	$46,520
3rd year (1973-74)	$48,230

The first year's proposal was funded at $27,700 or at 61% of the original request. Because local monies were not available to fund all of the balance needed, some modifications were necessary. It was originally proposed to develop program elements, program budgets and develop curricula for all Business Education subjects. A re-examination of this goal in light of reduced funding resulted in a first-year concentration on Typewriting courses in both senior high schools.

The second year's (1972-73) proposal was approved at $27,700, but amended and finally funded at $16,325 or at 35% of the original request. Again the concentration was in the Typewriting courses in both senior high schools and in Ben Franklin Junior High School.

The third year was funded at $13,000 or at 27% of the original request. The scope was extended to include other Vocational subjects. These subjects

were Accounting I and II, Shorthand I and II, Keypunch, Business Machines and Office Practice.

The total amount of approved funding during the three project years was $57,025. This was 41% of the proposed budget total of $140,000.

METHODS

Planning -

Project activities included work in all four of the PPBES phases. The planning phase was considered to be the foundation of the system. Several administrators and teachers were involved with various tasks in this phase.

A group of teachers and administrators was organized to develop goals and objectives. These were developed separately for each of the subject areas. The goals and objectives were developed for typewriting during the first project year. Goals and objectives for the other subjects were developed in the subsequent years.

Goals were stated in broad and general terms. They identified ideals at which the course activities could be directed. An example of the typewriting goals is given in Appendix A.

The objectives were developed in the same time sequence. Typewriting objectives were written during the first year and other objectives were written subsequently. Sets of objectives were developed for each program by the classroom teachers. The performance criteria in the objectives were stated clearly and explicitly to facilitate the program evaluation with respect to the objectives. The performance standards were set at a level that is attainable, yet challenging. Because these standards were set without the benefit of statistical data, it was necessary to make some changes

after actual classroom usage. An example of course objectives is given in Appendix A. This is the revised list of objectives for Typewriting III.

One of the tasks in this phase was the development of a program structure. This structure included all of the activities that are a part of the school district operation. Categories in the structure were broken down in succession to produce a series of different levels. The first program level included the three broad categories of general instruction, operational support, and instructional support. All three of these categories were subdivided. The general instruction category was broken at level two into communication skills, mathematics, vocational education, etc. At level three, one of the classifications under vocational education was business and office education. The latter was subdivided at level four to include typewriting, office practice, accounting, shorthand, business machines, and keypunch. The level five divisions showed the individual courses such as Typewriting I, Typewriting II, etc.

The planning stage work that has just been described was done in various meetings and workshops. Teachers met periodically during the project years. A summer PPBES Workshop was held in June, 1973. Six vocational teachers met with school administrators for four weeks. Much of the above work, and work in the other phases, was done at this time.

PROGRAMMING

In the programming phase the staff sought to identify alternative programs. They attempted to evaluate each of the alternatives and to, ultimately, select the best program for achieving the program objectives.

The staff members examined several pieces of curriculum materials. Eventually they chose to use the locally developed educational learning packages as the curriculum base. These materials had been developed locally on the basis of local educational needs.

The vocational teachers developed sets of packages for each of the courses. Some of this package development had been done before the start of the PPBES project. These packages were continuously revised and updated throughout the project. In the other subject areas package development was begun and some revision was completed.

The learning packages were designed to help achieve the program objectives. Each learning package was directed toward mastering one basic course skill. Thus, the first step in the package construction was the identification of basic skills. This was done for all courses. Skills were identified and sequenced. A copy of the skill sequence in Typewriting I is given in Appendix B.

The physical format was the same for all learning packages. Each package contained a general content description, prerequisites, a behavioral objective, pre-test, instructional experiences, and a post-test. A copy of one typewriting learning package is shown in Appendix B.

BUDGETING

This phase (budgeting) of the PPBS cycle is one that received major emphasis in this project. Development and implementation of an acceptable accounting system were the basic considerations.

Two alternative methods of developing an accounting system were considered:

1. To locally develop a complete system in the accounting and data processing departments.
2. To determine if any cost accounting systems for program budgeting in school districts had already been developed.

The first alternative was within the capability of the Fargo School District staff. However, starting from "ground-zero" was determined to be a method that would take a great deal of time to develop. This was particularly true because the time spent on this project by regular staff must be classified as "borrowed time." The staff members already had full-time jobs with the regular business of the school district. For this reason, the first alternative was set aside pending an investigation of the second.

The project director had been following the development of program budgeting for the past five years. He had attended two national conferences sponsored by the Research Committee of the Association of School Business Officials on the subject. One of the projects that appeared to have a great deal of promise was sponsored by the Minnesota ASBO and the Hopkins, Minnesota, School District, working closely with a consulting firm, the Aries Corporation of Minneapolis. After a full year of work with the Hopkins School District, a cost accounting system to support program budgeting was developed. The entire program was conceived and developed in a computerized format. After a thorough examination of the results of their research, it was the decision of the Fargo staff to purchase the basic system from the Aries Corporation and to retain their services for the necessary modifications to fit their package to our needs in the Fargo School District. This decision was approved by Mr. Ben Doutt, Research Director, State Board for Vocational Education. A

line item transfer between two budget items was also approved to make this arrangement possible. A contract was signed between the Fargo Public School District and the Aries Corporation on July 1, 1971.

The cost accounting system developed by the Aries Corporation was named Program Oriented Budgeting and Accounting System (POBAS). It is estimated that one full year's time was saved by selecting this alternative instead of attempting to develop a local system.

The POBAS System was developed for use in school systems in Minnesota. While both Minnesota and North Dakota accounting systems follow the general format of the U.S. Office of Education Handbook II, there are many significant variances between the two systems. A considerable amount of modification of the original system was essential.

The request to the consulting firm for program modifications originated with the Fargo School District Accounting and Data Processing staff. It was necessary to run a series of programs, analyze the results and determine the necessary modifications. This process continued during the entire period of the project. Final program modifications were completed about July 1, 1972.

Program modifications were requested to conform to North Dakota Accounting Regulations. Additionally, the local staff suggested several modifications that considerably improved the quality and capability of the entire system.

The staff arbitrarily selected July 1, 1972, as the date for starting the POBAS technique. This system was used in addition (or parallel) to the original traditional system.

Obviously, the operation of two systems simultaneously created some problems. There was a great increase in the amount of staff working time and

a corresponding increase in the demands on the various machines. The traditional system had been kept current throughout the years. However, there had been a lag in the updating of the POBAS system. In addition to the problems mentioned above, there have also been difficulties in adapting the system to the local Fargo situation and in modifying the program to run on the local computers.

The complexity of the POBAS technique has already been noted and the materials in the appendices should substantiate this technique. A partial listing of the codes is given in Appendix C. A twelve digit code is used for each entry. Three digits in the code are used for each of the following: department, source of funds, organizational units, and object.

A reproduction of a computer printout is shown in Appendix D. This gives an example of the output that is received and illustrates the intricate breakdowns that are possible with this system.

The vocational teachers were involved in calculating costs for each of the programs. They compiled the costs for repairs, new equipment, supplies, etc. Samples of the forms that were used are shown in Appendix E. The machine repairs were pro-rated to each program on the basis that was proportional to class time. The percentages of class usage were determined by the teachers. These figures are given in Table I in Appendix E.

EVALUATION

Evaluation is the fourth step in the PPBES cycle. The evaluation process enables school districts to see if they are achieving their objectives. It also permits districts the opportunity to examine and assess various alternative techniques. Ultimately, the evaluation process enables the school to collect data and information that aids in the educational decision making process. After these decisions have been made, the entire process moves to the planning stage and the PPBS cycle begins again.

The activities in this phase include the study of (1)relationships of performance to objectives, (2)student achievement gains and (3)relationships of achievement gains to program costs.

The relationships of performances to objectives were calculated by counting. The percentages of students who achieved the stated performance criteria were compared to the percentages specified in each objective.

Student achievement gains were calculated on the basis of pre- and post-tests in all classes. Most of the test instruments were locally developed. However, a change was made in January, 1973, to use a nationally standardized test in typewriting. The test is the "Students Typewriting Test" prepared by the National Business Education Association. The test comes in four levels one for each of the typewriting courses. This test met all of the local requirements and facilitated the measurement of all typewriting objectives. The standardized test had the advantages of national norms and proven reliability and validity. Tests that were constructed locally by the teachers are still being used in all other courses.

The relating of achievement to cost was done by calculating a cost/benefit

ratio. The format for making these calculations was developed and the actual calculations were made for the typewriting classes during the third project year.

RESULTS AND FINDINGS

Typewriting Classes -

The third year performances were evaluated in the manner outlined above. The relation of performance to objective is illustrated in Table II in Appendix F.

It is noted that about half of the groups achieved the speed performance standard (objective 1). It is also seen that about one-third to one-fourth of the groups achieved the production standards (objectives 2, 3, and 4). A look at the performances of the total Fargo group in each class indicates performances that were generally very close to the specified standard. This would seem to imply that the standards specified in the objectives are realistic, yet challenging.

The student achievement gains are shown in Tables III and IV in Appendix F. The figures for the first semester are shown in Table III and scores for the second semester are shown in Table IV. Gains are shown separately for each section. The gain was assumed to be the difference between pre- and post-scores and was calculated by subtracting. In some classes (Typewriting I and Business Machines), no pre-test was given because of the nature of these skill classes. In these cases the pre-scores were assumed to be zero and the gains were the actual post-scores.

Cost/benefit ratios were calculated to relate student achievement to financial costs. These figures are also shown in Tables III and IV in

Appendix F. The ratio reflects the average amount of money needed for an increase of one objective per student.

Some caution should be used in comparing any two of these ratios. There should be no attempt to compare ratios of two different programs. There should also be no attempt to compare ratios in the same program when the numbers of students are small in both (or either one) of the groups. It is noted that the ratios in all programs were generally very close when the numbers of students were normal (about 20 to 30 per class). There was one exception to this similarity in each semester. Some differences were noted in the Typewriting III and IV classes.

Teacher Attitude Survey -

The project staff felt that there had been an improvement in teacher attitude toward the project and the PPBES concept. Originally, the teachers seemed to be negative and somewhat defensive. They felt that the system might be used to evaluate individual teachers and to be used subsequently as a base for merit pay. However, there seemed to be a noticeable attitudinal change as the project developed. Teachers learned that the evaluations were used to improve curriculum and student achievement. Teachers seemed to become more positive and cooperative.

An attitude survey of the vocational teachers was conducted during the third project year. The results are given in Table V in Appendix G. These results tend to substantiate the staff's subjective feelings that were mentioned above.

A locally developed instrument was used to assess the teacher attitudes on a pre- and post-basis. Attitudes were assessed in seven sub-areas and with

respect to the total project. On these surveys, scores may range from 0 to 42.

It is seen in Table V that the teacher attitudes were positive on both the pre- and post-surveys. Part C of Table V indicates that there was no overall change from pre- to post-testing. However, there was a significant improvement with respect to two of the sub-areas. The teacher attitudes toward Fargo Public Schools'and 'Vocational Education' was more positive in May than in September.

There were some differences with respect to the attitudes toward the sub-areas. In the post-survey teachers tended to view (Table 5b) 'Vocational Education' very favorably while 'Testing Program' and 'Innovative Projects' were less favorable.

CONCLUSIONS AND RECOMMENDATIONS

Problems Encountered -

The project staff members encountered many problems in different areas of the project. The project director began in May, 1973, to compile a list of these problems. It is felt that knowledge of the problems may be helpful to the staff members. Further, it is believed that this list of problems would be beneficial to any other school that would be attempting such a project in the future.

The list of problems is given below:

1. There is a considerable amount of time required to do all of the work. Most of the people do this work in addition to other school duties.
2. Many modifications and revisions were needed to adapt the POBAS system to fit the local situation.
3. Modifications were needed to adapt the computer program to run

efficiently on the local computer.

4. The documentation for the computer program materials was very brief.
5. The consultants for the system were headquartered in Minneapolis. The distance factor discouraged regular communications.
6. The new system closes all accounts on June 30. The Fargo District has several projects that do not end on that date. This necessitated extra bookwork by the accountant.
7. The maintenance of two systems adds to many of these problems. The Fargo staff decided to continue to use their traditional system until the new POBAS system was proven and workable.
8. The fine breakdown of programs makes it difficult to assign supply costs, teacher costs, etc., to specific programs.
9. The curriculum work must be done by the teachers in addition to their regular classroom assignments. It is difficult, and probably not desirable, to do this work at the end of a typical school day.
10. A method must be devised to pro-rate machine costs when adult education classes and other groups use them. Similarily, methods must be used to pro-rate supply costs in these situations.
11. A satisfactory method must be devised for pro-rating costs of machine repairs. In this regard, it was felt that the beginning classes are harder on machines and should be assessed a greater proportion of the repair costs than the advanced classes.
12. A plan must be developed for the way to pro-rate expenditures in the case of class dropouts. The average per pupil cost may vary

with the different ways of handling this problem.

13. Decisions must be made on how to handle the students who move into the class during the term. Previously, consideration was made of only those students who took both the pre- and post-tests.

14. The need to requisition supplies by classes may tend to increase costs.

15. The system is quite different and unique. There was some resistance to change on the part of the staff.

16. The basic project purpose of enabling the district to evaluate all possible alternatives seemed to threaten the teachers at first. The teachers viewed it as a chance for the administration to evaluate individual instructors. However, they now have a positive feeling after involvement in the project and after repeated assurances from the project staff regarding this project purpose.

17. There was a chance to overemphasize costs. This could make the education process more materialistic.

18. Most of the people did not have previous training on PPBES.

19. Since the process is relatively new in education, there is a shortage of trained people to use as resource persons.

20. Because a very limited number of school districts have worked with PPBES, there is a shortage of models to examine and use as comparisons.

Benefits and Advantages -

The PPBES technique has many strengths and advantages. The Fargo project

has shown the local educators many of these strong points. Some of these have been recorded and are enumerated below.

1. The system provides a way for a school district to be accountable.
2. The system provided a means for the more efficient answering of questions posed by taxpayers, school boards, and other community groups.
3. It promotes staff involvement in problem solving and planning.
4. The system provided means for improving staff communication.
5. The system provided means for increasing uniformity throughout the school district with respect to curriculum materials and instructional methods.
6. The system places an emphasis on developing goals and objectives, examining alternatives, and establishing priorities.
7. The system permits the allocation of costs to the individual programs.
8. The system permits the relating of inputs and outputs.
9. The organization and coordination of activities can reduce overlap.
10. The system permits the gathering of more and better information for use by the decision making administrators.
11. Since very little work has been done on PPBES in education, the project allows districts and individuals to make important contributions to the development of this concept.
12. The system provided an opportunity for districts to base their educational systems on local needs and resources.
13. The project staff has developed a 25 minute slide-tape presentation on PPBES. This is the type of presentation that is used as

a basic introduction to the concept of PPBES. The first part of the presentation deals with the basic concepts; the second half relates these concepts to the precise activities that were performed in Fargo. This presentation has been shown several times locally and has been distributed for review to some national agencies.

Conclusion -

The project staff members believe that a great deal of progress was made during the three project years. The overall job has not been completed, but much worthwhile work was done.

One of the most important developments was in the area of improved instruction. The construction curriculum materials and the course development have strengthened the instructional process.

Another important aspect is in the actual development of the PPBES model. The work done in Fargo could be helpful to other districts and agencies that are beginning this type of work. The Fargo personnel have gained some knowledge about the system and they could serve as resource persons for these developing districts.

In general, the staff members are satisfied with the progress that was made during the three project years. They are also optimistic about the possible contributions that PPBES can make to the educational process.

Appendix A

TYPEWRITING GOALS

1. To achieve typewriting skills required to obtain basic job entry level employment in the business and office occupations.
2. To achieve typewriting skills that will improve personal development and enhance personal living.

TYPEWRITING I

OBJECTIVES:

1. In order to demonstrate an ability to typewrite by touch, 75% of the students will be able to score at least 18 points per minute on one of two five-minute writings scored by the NBEA test.

2. In order to demonstrate an ability to center horizontally and vertically, 80% of the students will be able to set up and type a 95 word exercise in ten minutes scoring at least 30 points on the NBEA test.

3. In order to demonstrate an ability to type business letters, 75% of the students will set up and type a 150 word letter in ten minutes scoring at least 28 points on the NBEA test.

4. In order to demonstrate an ability to type a one page long-hand theme, 80% of the students will type a half page in five minutes scoring at least 10 points on the NBEA test.

Appendix B

SEQUENCE OF SKILLS

Typewriting I -

1. Introduction to the Keys: a, s, d, f, j, k, l, ;, e, g, r, right shift key, and left shift key.
2. Introduction to the Keys: o, t, comma, m, c, colon, w, y, v, n, x, p.
3. Introduction to the Keys: b, z, diagonal, g, hyphen, question mark.
4. Introduction to Skill Drives.
5. Introduction to Centering.
6. Introduction to Numbers: 1, 2, 3, 4, 7, 8, 9, 0, 5, 6, fraction ½, ¼.
7. Skill Drive.
8. Introduction to Symbols: hyphen, underscore, apostrophe, exclamation, parenthesis, quotation mark, dollar sign, asterisk, percentage sign.
9. Display Reports: Centered Reports with Indented and Hanging Paragraphs.
10. Introduction to Business and Personal Letters.
11. Introduction to Tabulation.
12. Introduction to One Page Reports.
13. Introduction to Envelopes, Postal Cards, and Advanced Letters.
14. Introduction to Long Reports.
15. Skill Drive - Improvement in Typing on Straight Copy and Production Copy.
16. Introduction to Printed Business Forms.

LEARNING PACKAGE NUMBER: OE 601-090.00

GENERAL CONTENT DESCRIPTION: Senior High Typewriting III
Business Checks - Voucher & Standard

PREREQUISITES: Post Test: OE 601-085.03

BEHAVIORAL OBJECTIVES: In order to demonstrate the ability to type a voucher check, the student will correctly arrange and type a voucher check with 95% accuracy, within 10 minutes. The student will be given a check form.

SAMPLE TEST ITEMS: Job 17A, page 158, basic text.

PRETEST: None

INSTRUCTIONAL EXPERIENCES:

1. Type lines 1-8, page 156, basic text, each twice, working for speed development.

2. Take a 5-minute writing, page 157, basic text. Score your writing. Five error cut-off.

3. Type lines 9-14, page 156, basic text, according to SP. 5.AC. Type each line three times.

4. Read the directions to each problem and type Jobs 17A, 17B, 17C, and 17E, pages 158-159, basic text.

5. POST TEST: OE 601-090.03 Job 17D, page 159, basic text.

6. POST TEST KEY: OE 601-090.04 Page 158, basic text.

LIST OF PROJECT MATERIALS

List of basic skills, objectives, and sets of learning packages for:

Typewriting I, II, III, and IV

Accounting II

Key Punch

Office Practice

Business Machines

Shorthand I and II

List of basic skills and objectives for:

Accounting I

Slide-Tape Presentation on basic concept of PPBES

Appendix C

ORGANIZATIONAL UNITS

005	District Wide
030	District Office
070	Warehouse
105	Secondary Schools
205	All Senior High Schools
210	North Senior High School
220	South Senior High School
305	All Junior High Schools
310	Agassiz Junior High School
320	Ben Franklin Junior High School
405	All Elementary Schools
410	Carl Ben Eielson
420	Clara Barton
430	Hawthorne
440	Horace Mann
450	Jefferson
460	Lewis & Clark
470	Lincoln
480	Longfellow
490	McKinley
500	Madison
510	Roosevelt
520	Washington
530	Woodrow Wilson
605	Summer School - All
610	Summer School - Senior High Schools
620	Summer School - Junior High Schools
630	Summer School - Elementary Schools
705	All Adult Education Programs
710	Adult Education
805	All Other Programs
810	Evaluation and Training Center
850	Stadium
870	Maintenance Building

SOURCE OF REVENUE

REVENUE FROM LOCAL SOURCES

110 Property Tax
111 Property Tax-Curr
112 Interest & Penalty
114 Taxes-Prior Years
115 Per Prop Repl Tax

120 Tuition from patrons

130 Trans fees patrons

140 Other Revenue from local sources
141 Other Interest Income
142 Other Receipts-Clearing
143 Other Inc-Rent & Leases
144 Other Gifts & Bequests
145 Other Miscellaneous Revenue

150 Sheet Metal Workers
151 Carpenters Union

155 Cafeteria Sales

160 Milk Sales

REVENUE FROM COUNTY SOURCES

210 County Equalization Fund
211 Cty Share Tuition
212 Cty Share-Trans

230 Misc County Revenue

REVENUE FROM STATE SOURCES

310 State Tuition Apport

320 State Equalization Fund
321 State Share-Tuition
322 State Share-Trans
325 Special Education

331 North Dakota DVR Tuition

340 Agri-Business-Voc Ed
342 Ironworkers-Voc Ed
343 Carpenters-Voc Ed
344 Sheet Metal-Voc Ed
345 Office Ed Sp Needs-Voc Ed

REVENUE FROM FEDERAL SOURCES

410 Vocational Education

419 ESEA TITLE III PSP 71-2
420 ESEA TITLE III PSP 72-3

425 ESEA TITLE III RBSP 71-2
426 ESEA TITLE III RBSP 72-3

430 COP 72-3

435 ESEA TITLE I 71-2
436 ESEA TITLE I 72-3

440 ESEA TITLE II 71-2
441 ESEA TITLE II 72-3

445 EHA TITLE VI-13 72-3
446 ESEA TITLE VI

449 EPDA TITLE V - TTP 70-1
450 EPDA TITLE V - TTP 71-2

454 EPDA TITLE V - TATP 71-2
455 EPDA TITLE V - TATP 72-3

459 ESEA TITLE III - ABE 71-2
460 ESEA TITLE III - ABE 72-3

465 Emer Employment 71-2

470 Public Law 864
471 Public Law 874

475 Vocational PPBS 71-2
476 Vocational PPBS 72-3

481 Federal Receipts
482 Misc Federal Receipts

485 MC - Prescriptive 71-2
486 MC - Inservice 71-2
487 MC - Dropout Prev 71-2
488 MC - Voc Council 71-2

490 Other Revenue from Federal Sources

DEPARTMENT

GENERAL INSTRUCTION

110 COMMUNICATIONS PROGRAM
- 111 Reading
- 112 Spelling
- 113 Handwriting
- 114 Language Arts
- 115 English
- 116 Developmental English

- 121 French
- 122 German
- 123 Spanish
- 124 Latin

- 131 Advanced Placement
- 132 Creative Writing
- 133 Speech
- 134 Oral Interpretation
- 135 Drama
- 136 Journalism
- 137 Debate
- 138 Humanities

150 SCIENCE PROGRAM
- 151 Science
- 152 Life Science
- 153 Earth Science
- 154 Physical Science
- 155 Biology
- 156 Intermed Science
- 157 Chemistry
- 158 Physics
- 159 Chem Study

170 MATHEMATICS PROGRAM
- 171 Mathematics
- 172 Algebra ID
- 173 Algebra I
- 174 Occup Related Math
- 175 Algebra II
- 176 Plane Solid Geometry
- 177 Trigonometry
- 178 Analytic Geometry
- 179 Calculus I
- 180 Calculus II
- 181 Computer Programming

190 SOCIAL STUDIES PROGRAM
- 191 Social Studies
- 192 World Geography
- 193 Regional Geography
- 194 World Geography
- 195 US History to 1920
- 196 World History - 1920
- 197 US World History After 1920
- 198 American History Adv. Placement
- 199 Government
- 200 Sociology
- 201 Psychology
- 202 Economics
- 203 Social Science Survey

220 HEALTH-PE-REC-SAFETY
- 221 Health
- 222 Physical Education
- 223 Safety
- 224 Drivers Education

- 230 Athletics
- 231 Football
- 232 Track
- 233 Basketball
- 234 Hockey
- 235 Swimming
- 236 Tennis
- 237 Golf
- 238 Wrestling
- 239 Cross Country

270 ART PROGRAM
- 271 Art

280 MUSIC PROGRAM
- 281 Vocal
- 282 Instrumental
- 283 Instructional Music

OBJECT

100 SALARIES AND WAGES

101 Superintendent
102 Asst Superintendent
103 Administrative Asst
104 Supervisory Staff
105 Director
106 Coordinator
107 Department Head
108 Dean of Boys
109 Dean of Girls
110 Principal
111 Asst Principal
112 Research Analyst
113 Training Supervisor
114 Work Exp Coordinator

120 Teachers Reg
121 Special Teachers
122 Therapists
123 Diagnosticians
124 Reading Teachers
125 Summer School Teachers
126 Special Tutors
127 Prescriptive Teachers
128 Curriculum Personnel
129 Training Supervisor
130 Instructor
131 Related Instructor
132 Instructor I
133 Instructor II
134 Team Leaders

140 Sec'y and Clerical
141 Teacher Aides
142 Paraprofessionals
143 Librarians
144 Study Hall Supvr
145 Security Guards
146 Summer School Sec'y
147 Typists

150 Plant Engineers
151 Custodians & Matrons
152 Upkeep of Grounds
153 Repair of Buildings
154 Repair of Equip
155 Truck Driver
156 Warehouse Personnel
157 Tool Clerk
158 Printer

160 Counselors
161 Guidance Counselors
162 Visiting Counselors
163 Voc Counselor
164 Social Worker

165 Consultants
166 Evaluation
167 Vocational Eval
168 Asst Voc Evaluator

170 Student Salaries
171 Trainee Salaries

173 Teacher Assistants
174 Graduate Assistants

176 Cafeteria Workers
177 Admin Salaries

180 Student Act Sal
181 Act Speech & Cong
182 Act Dramatics
183 Act Publs & Radio
184 Act Debate

185 Substitutes
186 Sabbatical Leave
187 Emergency Leave
188 Sick Leave - Sec'y

190 Overtime
191 Admin Appraisal
192 Teacher Bonus
193 Teacher Salary Adj
194 Teacher Award
195 Curr. Council
196 Study Committee

199 Other Salaries

200 EMPLOYEE BENEFITS

205 Social Security
210 Teach Ins & Retire
215 State Retirement
220 OASIS

250 Group Health & Life
260 Income Protection
270 Workmen's Comp Ins

DATE 03/17/73 EXPENDITURE GUIDELINE REPORT - BY DEPARTMENT PAGE 011

DISTRICT 001 FARGO PUBLIC SCHOOLS AS OF JULY 31, 1972 REPORT NO 25

	A YTD EXPENDED	B YTD ENCUMBERED	C BUDGET	C-(A+B) BUDGET BALANCE	PERCENT EXPENDED-ENCUMBERED 10-20-30-40-50-60-70-80-90-100
321 TYPEWRITING III					
210 NORTH SR. HIGH					
000					
330 SUPPLIES	0.00	0.00	200.00	200.00	
461 REPAIR OF EQUIP	154.00	45.00	400.00	201.00	----------50
580 REPLACEMENT OF EQUIP	0.00	0.00	2,000.00	2,000.00	
TOTAL	154.00	45.00	2,600.00	2,401.00	08
TOTAL NORTH SR. HIGH	154.00	45.00	2,600.00	2,401.00	08
220 SOUTH SR. HIGH					
000					
330 SUPPLIES	0.00	0.00	300.00	300.00	
461 REPAIR OF EQUIP	173.25	0.00	400.00	226.75	----------43
580 REPLACEMENT OF EQUIP	0.00	0.00	2,000.00	2,000.00	
TOTAL	173.25	0.00	2,700.00	2,526.75	06
TOTAL SOUTH SR. HIGH	173.25	0.00	2,700.00	2,526.75	06
SECONDARY SERIES TOTAL	327.25	45.00	5,300.00	4,927.75	07
TOTAL TYPEWRITING III	327.25	45.00	5,300.00	4,927.75	07

Appendix D

DISTRICT 001 FARGO PUBLIC SCHOOLS AS OF JULY 31, 1972 REPORT NO 2

				A YTD EXPENDED	B YTD ENCUMBERED	C BUDGET	C-(A+B) BUDGET BALANCE	PERCENT EXPENDED-ENCUMBERED 10-20-30-40-50-60-70-80-90-100
330	005	000	485	23.60	0.00	1,392.82	1,369.22	02
330	005	000	486	3,977.96	2,458.81	4,079.15	2,357.62-	----------158
330	005	000	487	0.00	0.00	300.00	300.00	
330	005	000	488	374.34	306.32	1,819.57	1,138.91	-----37
330	005	000	915	17.64	0.00	0.00	17.64-	
330	005	000	917	57.91	0.00	0.00	57.91-	
330	005	000	918	18.49	0.00	0.00	18.49-	
330	005	000	926	399.48	3,243.79	0.00	3,643.27-	
330	005	000	929	0.00	0.00	0.00	0.00	
330	005	000	941	0.00	0.00	0.00	0.00	
330	005	000	949	0.00	0.00	500.00	500.00	
330	005	000	953	0.00	0.00	0.00	0.00	
330	005	110	000	0.00	0.00	0.00	0.00	
330	005	150	000	9.04	3,239.09	8,000.00	4,751.87	---------41
330	005	170	000	0.00	169.83	8,000.00	7,830.17	02
330	005	190	000	0.00	0.00	0.00	0.00	
330	005	270	000	1,376.60	7,040.79	13,900.00	5,482.61	---------------61
330	005	280	000	476.05	1,248.48	16,000.00	14,275.47	11
330	005	300	000	330.68	1,033.43	7,900.00	6,535.89	17
330	005	410	000	1,061.81	247.31	7,400.00	6,090.88	18
330	005	460	000	26.75	822.72	13,000.00	12,150.53	07
330	005	702	000	346.89	196.73	5,250.00	4,706.38	10
330	005	712	000	0.00	259.00	4,000.00	3,741.00	06
330	005	862	000	884.92	5,411.97	11,000.00	4,703.11	------------57
330	005	880	000	61.34	330.23	4,400.00	4,008.43	09
330	005	888	000	18.75	2,291.10	11,680.00	9,370.15	---20
330	005	900	000	0.00	0.00	822.00	822.00	
330	005	920	000	0.00	306.00	1,600.00	1,294.00	19
TOTAL 005				9,530.25	28,921.10	127,543.54	89,092.19	------30
SUPPLIES								
330	205	222	000	0.00	2,148.14	4,200.00	2,051.86	------------51
TOTAL 205				0.00	2,148.14	4,200.00	2,051.86	------------51
SUPPLIES								
330	210	321	000	0.00	0.00	200.00	200.00	
330	210	322	000	0.00	0.00	200.00	200.00	
330	210	323	000	0.00	0.00	100.00	100.00	
330	210	324	000	0.00	0.00	100.00	100.00	
330	210	325	000	0.00	0.00	100.00	100.00	
330	210	326	000	0.00	0.00	500.00	500.00	
330	210	327	000	0.00	0.00	400.00	400.00	
330	210	328	000	0.00	0.00	400.00	400.00	
330	210	329	000	0.00	0.00	100.00	100.00	
330	210	421	000	0.00	0.00	100.00	100.00	
330	210	422	000	0.00	0.00	100.00	100.00	
330	210	423	000	0.00	0.00	100.00	100.00	
330	210	424	000	0.00	0.00	100.00	100.00	

ROOM _____

TOTAL ROOM REPAIR (TRR) = ($18) · NUMBER OF MACHINES (_____)

Classes	(A) Number of students	(B) % of classtime that machines are used (arbitrary decision)	(C) Full-time student usage equivalent (A) · (B)	(D) Fractional part of machine usage (C) ÷ (Total C)	(E) Repair costs (D) · (TRR)
TOTAL					

Appendix E

COURSE _____

SCHOOL _____

SCHOOL YEAR _____

FISCAL YEAR _____ SEMESTER _____

REPAIRS _____

RENTAL _____

NEW EQUIPMENT _____

REPLACE EQUIPMENT _____

CONSUMABLE SUPPLIES _____

TEACHER COSTS -

Teachers name	(A) Total Number of School Classes	(B) Number of Sections in Specified Subjects	(C) Enrollment in each section of this subject	(D) % of time devoted to this subject (B) ÷ (A)	(E) Salary + Benefits	(F) Amount of salary allocated to this (E) ÷ (D)

TABLE I

The following percentages were determined by the teachers as the appropriate percentage of machine use by various classes in various rooms.

Class \ Room	TYP	Business Machines	Classroom	Dictaphones
Typ I	100%			
Typ II	100%			
Typ III	100%			
Typ IV	100%			
SH I	10%			
SH II	25%			
OFF Practice	30%	20%		50%
ACCT I	0%		100%	
Acct II	0%	20%	100%	
Record Keeping	0%		100%	
Business Machines		100%		
D. E.			10%	
Keypunch		100%(simulation)		
Adult TYP	100%			
Adult ACCT	0%	20%	100%	
Adult Key Punch		100%		
Adult Bus. Machines		100%		

Divide the cost of the "resource centers" as follows:

TYP I	Total N	100% of repair costs
TYP II	Total N	
TYP III	Total N	
TYP IV	Total N	
OFF PRACTIE	Total N	
Student Body	10% • N	

Appendix F

TABLE II

A LIST OF THE PERCENTAGES OF STUDENTS WHO ACHIEVED THE CRITERIA ASSOCIATED WITH THE VARIOUS OBJECTIVES (POST-TESTS, MAY 1974)

CLASS	NUMBER OF STUDENTS	OBJ 1	OBJ 2	OBJ 3	OBJ 4
TYPEWRITING I					
FARGO	114	68%	68%	70%	67%
North High School					
Per 8	13	62%	77%	77%*	62%
South High School	101	68%	66%	69%	67%
Per 7	34	79%*	68%	76%*	76%
Per 8	35	83%*	86%*	89%*	83%*
Per 1	32	41%	44%	41%	41%
TYPEWRITING II					
FARGO	117	83%*	50%	44%	71%
North High School					
Per 9	21	67%*	67%	57%	29%
South High School	96	86%*	46%	41%	80%*
Per 2	35	80%*	46%	40%	74%
Per 3	28	96%*	50%	46%	86%*
Per 5	33	85%*	42%	36%	82%*
TYPEWRITING III					
FARGO	30	47%	63%	53%	80%*
North High School					
Per 7	21	43%	71%*	76%*	76%*
South High School					
Per 9	9	56%	44%	0%	89%*
TYPEWRITING IV					
FARGO	56	68%*	66%*	59%	50%
North High School	30	70%*	80%*	83%*	70%*
Per 3	16	56%	81%*	81%*	63%
Per 5	14	86%*	79%*	86%*	79%*
South High School	26	65%*	50%	31%	27%
Per 7	10	60%	30%	30%	40%
Per 4	16	69%*	63%	31%	19%

* Indicates the classes that achieved the objectives.

TABLE III
RESULTS OF 1st SEMESTER, 1973-74 SHOWING PRE-TESTS, POST-TESTS, GAINS, COSTS AND COST/BENEFIT RATIOS

CLASS	(n)	(A) PRE MEAN	(B) POST MEAN	(C) AVERAGE GAIN(B-A)	(D) COST	(E) COST PER STUDENT	(F) *COST/BENEFIT (E÷C)
FARGO TYPING I	(456)	....	99.62	99.62	$20,791	$45.59	$ .46
South Typing I	(232)	....	95.22	95.22	$10,094	$43.51	$ .46
Period 1	(35)	....	83.23	83.23			
Period 4	(37)	....	86.03	86.03			
Period 2	(33)	....	101.15	101.15			
Period 3	(33)	....	102.18	102.18			
Period 5	(31)	....	103.16	103.16			
Period 7	(32)	....	96.09	96.09			
Period 8	(31)	....	97.19	97.19			
North Typing I	(30)	....	106.20	106.20	$ 1,437	$47.88	$ .45
Ben Franklin Typing	(194)	....	103.87	103.87	$ 9,260	$47.73	$ .46
Period 1	(22)	....	93.73	93.73			
Period 3	(32)	....	102.75	102.75			
Period 5	(29)	....	109.17	109.17			
Period 6	(33)	....	107.12	107.12			
Period 7	(28)	....	99.29	99.29			
Period 8	(17)	....	103.72	103.72			
Period 4	(33)	....	107.76	107.76			
FARGO TYPING II	(78)	39.17	78.48	39.31	$ 4,476	$57.38	$1.46
South Typing II	(41)	46.03	86.93	40.90	$ 1,867	$45.54	$1.11
Period 6	(20)	49.24	85.80	36.56			
Period 9	(21)	42.81	88.00	45.19			
North Typing II	(37)	31.79	69.11	37.32	$ 2,609	$70.52	$1.89
Period 5	(19)	30.85	65.00	34.15			
Period 9	(18)	32.88	73.44	40.56			
FARGO TYPING III	(80)	44.04	71.72	27.68	$ 5,880	$73.50	$2.65
South Typing III	(35)	49.41	60.52	11.11	$ 2,186	$62.45	$5.62
Period 4	(16)	52.06	55.38	3.32			
Period 7	(19)	46.89	64.84	17.95			
North Typing III	(45)	40.21	80.44	40.23	$ 3,694	$82.08	$2.04
Period 3-4	(24)	39.75	82.29	42.54			
Period 5-6	(21)	40.61	78.33	37.72			
FARGO KEYPUNCH	(21)	4.42	79.64	75.22	$ 5,272	$251.04	$3.34
South Keypunch	(13)	1.80	84.11	82.31	$ 2,726	$209.53	$2.55
North Keypunch	(8)	8.78	72.38	63.60	$ 2,546	$318.25	$5.00
FARGO BUSINESS MACH.	(84)	....	84.49	84.49	$ 9,500	$113.10	$1.34
South Bus. Machines	(44)	....	82.52	82.52	$ 4,821	$109.57	$1.33
Period 1	(14)	....	78.37	78.37			
Period 3	(18)	....	88.73	88.73			
Period 9	(12)	....	78.06	78.06			
North Bus. Machines	(40)	....	86.65	86.65	$ 4,679	$116.97	$1.35
Period 5	(22)	....	89.00	89.00			
Period 9	(18)	....	83.78	83.78			

*Cost/benefit ratio is the average amount of money needed for an increase of one objective per student.

Appendix G

TABLE IV
RESULTS OF 2nd SEMESTER, 1973-74 SHOWING PRE-TESTS, POST-TESTS, GAINS, COSTS, AND COST/BENEFIT RATIOS

CLASS	(n)	(A) PRE MEAN	(B) POST MEAN	(C) AVERAGE GAIN(B-A)	(D) COST	(E) COST PER STUDENT	(F) *COST/BENEFIT (E÷C)
FARGO TYPING I	(114)	....	101.58	101.58	$5805	$50.92	$ .50
North Typing I							
Per 8	(13)	....	110.73	110.73	$1602	$123.26	$1.11
South Typing I	(101)	....	100.40	100.40	$4203	$ 41.61	$ .41
Per 7	(34)	....	106.50	106.50			
Per 8	(35)	....	115.34	115.34			
Per 1	(32)	....	77.59	77.59			
FARGO TYPING II	(117)	62.14	98.12	35.98	$6533	$ 55.84	$1.55
North Typing II							
Per 9	(21)	42.22	92.79	50.57	$1604	$ 76.40	$ 1.51
South Typing II	(96)	67.07	99.28	31.21	$4929	$ 51.34	$ 1.65
Per 2	(35)	67.21	95.91	28.70			
Per 3	(28)	67.00	102.83	35.83			
Per 5	(33)	66.97	99.85	32.88			
FARGO TYPING III	(30)	40.10	73.20	33.10	$2863	$ 95.43	$ 2.88
North Typing III							
Per 7	(21)	40.90	77.38	36.48	$1847	$ 87.96	$ 2.41
South Typing III							
Per 9	(9)	38.33	63.44	25.11	$1016	$112.93	$ 4.98
FARGO TYPING IV	(56)	78.38	109.90	31.52	$5514	$ 98.46	$3.12
North Typing IV	(30)	86.72	129.17	42.45	$3328	$110.95	$2.61
Per 3	(16)	88.36	123.35	34.99			
Per 5	(14)	85.07	135.93	50.86			
South Typing IV	(26)	69.04	87.66	18.62	$2186	$ 84.08	$4.52
Per 7	(10)	68.36	89.30	20.94			
Per 4	(16)	69.57	86.63	17.06			

TABLE V

(a)RESULTS OF THE PRE-ATTITUDE SURVEY OF NINE VOCATIONAL TEACHERS(Sept., 1973)

Concept Means and Standard Deviations

CONCEPT	MEAN	STANDARD DEVIATION
Course Curricula	33.44	6.88
The Testing Program	29.44	5.57
Administration of Program	33.22	5.54
Fargo Public School System	29.56	5.17
State Aid to Sponsor Project	30.22	4.18
Innovative Projects	27.44	5.73
Vocational Education	34.33	4.74
TOTAL	217.67	30.92

RESULTS OF THE ANALYSIS OF VARIANCE TESTS COMPARING DIFFERENCES IN CONCEPT MEANS

F = 1.95 Not significant

(b)RESULTS OF THE POST-ATTITUDE SURVEY OF TEN VOCATIONAL TEACHERS AT NORTH AND SOUTH HIGH SCHOOLS (May, 1974)

Concept Means and Standard Deviations

CONCEPT	MEAN	STANDARD DEVIATION
Course Curricula	30.40	5.87
The Testing Program	26.30	10.11
Administration of Program	30.70	7.59
Fargo Public School System	33.90	3.63
State Aid to Sponsor Project	31.80	3.43
Innovative Projects	28.50	5.17
Vocational Education	38.10	2.81
TOTAL	219.70	20.88

Results Of The Analysis of Variance Tests Comparing Differences in Concept Means

F = 4.01 Significant at .01

Results of Fisher LSD Test

Comparing Mean Differences (LSD = 5.39)
Lines connect means that do not differ significantly.

TEST	INN	CC	ADM	STATE	FPS	VOC. ED
26.30	28.50	30.40	30.70	31.80	33.90	38.10

(c) RESULTS OF TESTS COMPARING PRE- AND POST- MEANS ON THE BUSINESS OFFICE TEACHERS ATTITUDE SURVEY

CONCEPT	PRE MEAN	POST MEAN	t	DIFFERENCES
Course Curricula	33.44	30.40	-1.04 NS	
Testing Program	29.44	26.30	-0.82 NS	
Administration of Program	33.22	30.70	-0.82 NS	
Fargo Public Schools	29.56	33.90	2.14*	post > pre
State Aid To Sponsor	30.22	31.80	0.90 NS	
Innovative Projects	27.44	28.50	0.42 NS	
Vocational Education	34.33	38.10	2.14*	post > pre
TOTAL	217.67	219.70	0.17 NS	